



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.             | CONFIRMATION NO.            |
|---|-------------|----------------------|---------------------------------|-----------------------------|
| 10/673,180  | 09/30/2003  | Toshio Tsujimoto     | 243214US0X                      | 1265                        |
| 22850   | 7590        | 07/13/2007           |                                 |                             |
| OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.<br>1940 DUKE STREET<br>ALEXANDRIA, VA 22314 |             |                      |                                 |                             |
|   |             |                      | EXAMINER<br>SONG, MATTHEW J     |                             |
|   |             |                      | ART UNIT<br>1722                | PAPER NUMBER                |
|   |             |                      | NOTIFICATION DATE<br>07/13/2007 | DELIVERY MODE<br>ELECTRONIC |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com  
oblonpat@oblon.com  
jgardner@oblon.com

|                              |                                      |   |  |
|------------------------------|--------------------------------------|---|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/673,180 | <b>Applicant(s)</b><br>TSUJIMOTO ET AL. |  |
|                              | <b>Examiner</b><br>Matthew J. Song   | <b>Art Unit</b><br>1722                 |  |

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10 April 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 16,18-22 and 24-32 is/are pending in the application.
- 4a) Of the above claim(s) 24-26 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 16,18-22 and 27-32 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments, see page 7 of the remarks, filed 4/10/2007, with respect to the rejection(s) of claim(s) 16-18, 20-21, 23 and 27 under 35 U.S.C. 102(b) in view of Sato have been fully considered and are persuasive. Therefore, the rejection has been withdrawn.

However, upon further consideration, a new ground(s) of rejection is made in view of Loxley et al (US 5,053,359).

2. Applicant's arguments, see page 7 of the remarks, filed 4/10/2007, with respect to the rejection(s) of claim(s) 16-18, 20-23 and 27 under 35 U.S.C. 102(b) in view of Abe have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Loxley et al (US 5,053,359).

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any

Art Unit: 1722

evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 16, 18-22, and 27-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Loxley et al (US 5,053,359) in view of Fukao et al (US 5,211,733).

In a method of forming a reinforced silica glass crucible, note entire reference, Loxley et al teaches a porous silica perform is sintered in a furnace to form a crucible (col 11, ln 35-50). Loxley et al also teaches during crystal growth, the temperature is sufficient to crystallize the glass below the melt line (col 15, ln 5-60) and the crucible formed has a porosity of 2-3% (col 15, ln 15-30), this clearly suggests applicant's porous layer of crystalline quartz. The crystallized quartz is formed on the surface of the crucible, thus is in a ring configuration because of the circular bowl shape of the crucible (See Fig 9). Loxley et al also teaches the using pure silica having alkali metal impurities below 5 ppm (col 8, ln 1-20), overlapping ranges are held to be prima facie obvious (MPEP 2144.05). Furthermore, it is known in the art to have silica with an alkali metal content below 1 ppm, preferably below 0.1 ppm, as evidenced by Fukao et al (US 5,211,733) below and the mere purity of a product does not make the product patentable (MPEP 2144.04).

Referring to claims 18, 28, and 29, claims 18, 28 and 29 are product-by-process claims. The patentability determination of a product-by-process claim is based on the patentability of the product and does not depend on its method of production (MPEP 2113). Loxley et al teaches a

Art Unit: 1722

silica layer and a porous crystalline quartz layer formed during crystal growth, thus meets the claimed invention (col 15, ln 1-67).

Referring to claims 19 and 32, Loxley et al teaches silica particles have an average particle size of from 1 to 10 microns (col 22, ln 55-67), this clearly suggests applicant's more than 20 weight % of silica powder consists of silica having a size of less than 10 micrometers and 20 weight % or less having a size of from 10-150 micrometers because overlapping ranges are held to be prima facie obvious (MPEP 2144.05) and the use of 100% of silica powder having less than 10 micrometers in size is within the skill of a person in the art, as evidenced by Loxley et al (US 5,389,582) below.

Referring to claim 20, Loxley et al discloses a quartz crucible (Abstract).

Referring to claims 21, 22, 27, 30, and 31 Loxley et al discloses converting 90% by weight of the silica to crystalline silica (col 12, ln 50-60), this would be expected to include at least part of the inside and outside surfaces.

### ***Response to Arguments***

5. Applicant's arguments with respect to claims 16, 18-22, and 27-32 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Art Unit: 1722

Fukao et al (US 5,211,733) teaches silica powder having at most 1 ppm, preferably at most 0.1 ppm (col 3, ln 1-35).

Loxley et al (US 5,389,582) teaches using silica particles having a size of 1 to 8 microns (col 6, ln 15-39).

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew J. Song whose telephone number is 571-272-1468. The examiner can normally be reached on M-F 9:00-5:00.

Art Unit: 1722

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Yogendra Gupta can be reached on 571-272-1316. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Matthew J Song  
Examiner  
Art Unit 1722

  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700

MJS  
July 8, 2007